Photovoltaic power generation parameters of Uruguay communication photovoltaic base station

What are PV plant capacity factors in Uruguay?

The study finds an average capacity factor of 22.4% over the five-year period, with monthly variations ranging from 14.1% to 28.1%. This work provides the first precise assessment of PV plant capacity factors in Uruguay, providing valuable insights for grid management and future solar energy investments.

Where are the large-scale PV plants installed in Uruguay?

DATA The environmental and operational data of the large-scale PV plants installed in Uruguay are public and available on the ADME1 website. The PV plant known as "La Jacinta",located in the northwest of Uruguay(latitude -31.43°S and longitude -57.91°W),is considered for this study as it is one of the largest PV plants in the country.

What is the NPV capacity of a solar power plant?

According to the experimental results, the optimized relative net present value ranges from 1.37 to 1.39, with optimized capacity factors around 24%. Index Terms--PV power plant, optimization, NPV, Uruguay. Solar photovoltaic (PV) installed capacity is growing at unprecedented rates around the world every year .

What are the control variables of a photovoltaic plant?

The control variables include the tilt of the photovoltaic panels, the number of series and parallel connections, the number of rows and columns of photovoltaic blocks in the sub-park, the distance between the rows, and the ratio of the DC power of the photovoltaic panels to the nominal AC power of the plant.

In this work we simulate the output of the JICA"s PV power plant on an hourly basis to derive an estimation of the capacity factor and validate our model with the ground-truth power...

In this work, machine learning (ML) techniques were implemented to forecast PV power production up to 1-hour ahead with a 10-minute granularity.

Experimental measurements were conducted on a photovoltaic system at the Technological University of Uruguay (ITRCS) using a network analyzer to assess power factor and ...

This work implements a methodology to generate a multi-year gap-free solar irradiance and PV generation time series for one of the largest PV power plants in Uruguay.

This article focuses on maximizing the relative net present value of a photovoltaic power plant by applying optimization techniques to its design. The case study refers to a 50 MW (AC) plant ...

The proposed SDN-PVBS framework specifically addresses power fluctuations in 5G photovoltaic base stations through precise photovoltaic energy prediction, data-driven energy ...

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The optimization of PV and ESS setup according to local conditions has a direct impact on the economic and ecological benefits of the base station power system. An improved base station ...

The study analyzes and compares arti ficial neural network approaches for a speci fic case study using real solar photovoltaic power generation data from Uruguay in the period 2018 to ...

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